

Notice of Allowability

Application No.

09/869,277

Examiner

Lynette T. Umez-Eronini

Applicant(s)

HAMA ET AL.

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/26/2005.
2. ☒ The allowed claim(s) is/are 1,2,6-8,13-18 and 20-27.
3. ☒ The drawings filed on 25 June 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

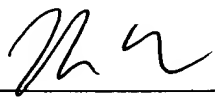
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 8/18/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER



DETAILED ACTION

Request Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/26/2005 has been entered. The finality of the previous Office Action has been withdrawn because the former prior art of record failed to teach adding oxygen intermittently into a fluorocarbon process gas, which is continuously introduced into the process chamber during the plasma process.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Kim on 8/18/2005. The application has been amended as follows:

Cancel claims 5 and 12;

Art Unit: 1765

Add --26. (New) The plasma process method according to claim 23, wherein;

a relationship between a change occurring in the aspect ratio and a change occurring in the plasma is ascertained in advance and the oxygen added into the process gas is adjusted in conformance to the change in the plasma.--;
and

Add --27. (New) A plasma processing method according to claim 13, wherein;

the oxygen added into the process gas is increased and decreased after the plasma is stabilized.--.

3. The following is an examiner's statement of reasons for allowance:

As to claims 1, 2, and 6, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: oxygen is intermittently added into a process gas that contains at least a fluorocarbon, which is continuously introduced into the process chamber during the plasma process, in combination with the rest of the limitations of the said claims;

As to claims 7 and 8, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: the length of time over which oxygen added into a process gas containing at least a fluorocarbon that is continuously introduced into the process chamber during the plasma process, is increased is less than the length of time

Art Unit: 1765

over which the oxygen added is decreased, in combination with the rest of the limitations of the said claims;

As to claim 13-16, and 27, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: the oxygen added into a process gas containing at least a fluorocarbon that is continuously introduced into the process chamber during the plasma process, is increased in proportion to an increase in an aspect ratio of a contact hole formed at said silicon oxide film layer, in combination with the rest of the limitations of the said claims;

As to claims 17 and 18, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: oxygen is intermittently added into a process gas containing at least a fluorocarbon, which is continuously introduced into the process chamber during the plasma process, in combination with the rest of the limitations of the said claims;

As to claim 20, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: plasma process is implemented while increasing and decreasing the oxygen added into a process gas containing at least oxygen and at least fluorocarbon, which is continuously introduced into the process chamber during the plasma process in combination with the rest of the limitations of the claim;

As to claims 21 and 22, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing

Art Unit: 1765

method that comprises: plasma process is implemented while increasing the oxygen added into a process gas containing at least oxygen and at least fluorocarbon, which is continuously introduced into the process chamber during the plasma process, in combination with the rest of the limitations of the said claims; and

As to claim 23-26, the prior art of record taken alone or in combination fails to suggest, teach, or render obvious a plasma processing method that comprises: oxygen is intermittently added into a process gas that contains at least fluorocarbon, which is continuously introduced into the process chamber during the plasma process, in combination with the rest of the limitations of the said claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax

Art Unit: 1765

phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ltue

August 18, 2005

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

